



DATA VALIDATION REPORT

Gold King Mine Follow-Up Monitoring

SAMPLE DELIVERY GROUP: 680-124126-1

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title: Gold King Mine Follow-Up Monitoring
Project No.: 20408.012.001.0285.00
Sample Delivery Group: 680-124126-1
EPA Project Manager: Steve Merritt
Weston Project Manager: Mark Blanchard
TDD No.: 0001/1510-02
Matrix: Solid/Water
QC Level: Stage 2A
No. of Samples: 8
No. of Reanalyses/Dilutions: 0
Laboratory: TestAmerica - Denver

Table 1. Sample Identification

<i>Location ID</i>	<i>Lab Sample Name</i>	<i>Matrix Type</i>	<i>Collection Date</i>	<i>Method</i>
GST_SLUDGE_041216	680-124126-8	Solid	4/12/16 2:00 PM	6010C, 6020A, 7471A
GSTI	680-124126-4	Water	4/12/16 1:00 PM	200.7, 200.8, 245.1
GSTI_C_TEST_638	680-124126-3	Water	4/12/16 1:30 PM	200.7, 200.8, 245.1
GSTI_C_TEST_746	680-124126-7	Water	4/12/16 2:10 PM	200.7, 200.8, 245.1
GSTI_C_TEST_961	680-124126-5	Water	4/12/16 2:35 PM	200.7, 200.8, 245.1
GSTO_TEST_638	680-124126-6	Water	4/12/16 1:45 PM	200.7, 200.8, 245.1
GSTO_TEST_746	680-124126-2	Water	4/12/16 2:15 PM	200.7, 200.8, 245.1
GSTO_TEST_961	680-124126-1	Water	4/12/16 2:30 PM	200.7, 200.8, 245.1

II. Sample Management

Anomalies regarding sample management are noted below. The samples were received within the temperature limits of 4°C ±2°C. The samples were received intact, on ice, and properly preserved. The chains-of-custody (COCs) were appropriately signed and dated by field and laboratory personnel. The presence or absence of custody seals on the cooler was not specifically noted. Sample GST_SLUDGE_041216 was a solid sludge which was first prepared according to the TCLP leachate procedure SW-846 Method 1311. The sample results are reported in liquid units of mg/L for all analytes.

The following issues were noted:

- Corrections made to the COC were made by overwriting the original entry. The corrections were not initialed or dated.
- The COCs did not list CLP sample IDs, and none were provided. The laboratory logged the samples per the location IDs on the COCs.



- The presence or absence of sample tags was not noted in the case narrative, and sample tags were not listed on the COCs.



Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
UB	The analyte was detected in the sample and in either the associated laboratory blank or field blank. If detected below the reporting limit (RL) the analyte result was reported as non-detected at the RL due to blank contamination. If detected above the RL, the analyte result was reported as non-detected at the reported result due to blank contamination.	The analyte was detected in the sample and in either the associated laboratory blank or field blank. If detected below the reporting limit (RL) the analyte result was reported as non-detected at the RL due to blank contamination. If detected above the RL, the analyte result was reported as non-detected at the reported result due to blank contamination.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.



Qualifier	Organics	Inorganics
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
UJB	The analyte was detected in the sample and in either the associated laboratory blank or field blank; the analyte result was reported as non-detected at either the RL or the reported result. The reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The analyte was detected in the sample and in either the associated laboratory blank or field blank; the analyte result was reported as non-detected at either the RL or the reported result. The reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.



Qualifier	Organics	Inorganics
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.



III. Method Analyses

A. Contract Laboratory Program Statement of Work for Inorganic Superfund Methods, 200.7, 200.8, 245.1, 6010C, 6020A, 7470A — Metals and Mercury

Reviewed By: M. Cherny

Date Reviewed: May 6, 2016

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U.S. EPA Region 8 CERCLA Site Assessment, Sampling and Analysis Plan/Quality Assurance Project Plan for Gold King Mine Release, Silverton, San Juan County, Colorado* (2015), *United States Environmental Protection Agency Contract Laboratory Program Statement of Work for Inorganic Superfund Methods, EPA Methods 200.7, 200.8, 245.1, 6010C, 6020A and 7470A* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2010).

- Holding Times: The analytical holding times, 28 days for mercury and six months for the remaining metals, were met.
- Analytical Method Blanks: There were no detects in the method blanks above the method detection limits (MDLs).
- Laboratory Control Samples (LCS): The recoveries were within the laboratory control limits of 85-115% for waters, 75-125% for 6020A, and 80-120% for the 6010C and 7470A analytes.
- Laboratory Duplicates: Laboratory duplicate analyses were not performed on a sample from this SDG. Method precision was evaluated based on matrix spike/matrix spike duplicate results.
- Matrix Spike/Matrix Spike Duplicate (MS/MSD): MS/MSD analyses were performed on the samples below. Results were not assessed when the native concentration was more than 4× the spike amount. Potassium detects below were qualified as estimated with a potential high bias (J+), and the silver nondetect was qualified as estimated (UJ).

Parent Sample	Analyte and recoveries	Sample(s) qualified
GSTI_C_TEST_746	Total potassium (126% / 128%)	All water samples
GSTO_TEST_961	Total and dissolved mercury (acceptable)	None
GST_SLUDGE_041216	Total silver (50% / 53%)	GST_SLUDGE_041216



The remaining recoveries were within the laboratory control limits of 75-125% for the 200.7, 6010C and 6020A analytes; 80-120% for the 7470A mercury and within 70-130% for aqueous mercury and the 200.8 analytes. The RPDs were $\leq 20\%$. Method accuracy for dissolved 200.7 and 200.8 metals was evaluated based on the LCS results.

- Post Digestion Spike (PDS): There were no PDS analyses performed on a sample in this SDG.
- Serial Dilution: Serial dilution analyses were not performed.
- Field QC Samples: MEC^X evaluated field quality control (QC) samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:
 - Field Blanks and Equipment Rinsates: Field blank or equipment blank samples were not identified for this SDG.
 - Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms: 680-124126-1

Analysis Method 200.7 Rev 4.4

Sample Name GSTO_TEST_961

Matrix Type: Water

Lab Sample Name: 680-124126-1

Sample Date: 4/12/2016 2:30:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	170	200	24	ug/L	J	J	
Aluminum, Dissolved	D	7429-90-5	110	200	24	ug/L	J	J	
Calcium	T	7440-70-2	420000	500	25	ug/L			
Calcium, Dissolved	D	7440-70-2	410000	500	25	ug/L			
Iron	T	7439-89-6	340	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	25	50	17	ug/L	J	J	
Magnesium	T	7439-95-4	15000	500	33	ug/L			
Magnesium, Dissolved	D	7439-95-4	14000	500	33	ug/L			
Potassium	T	7440-09-7	1800	1000	17	ug/L		J+	Q
Potassium, Dissolved	D	7440-09-7	1800	1000	17	ug/L			
Sodium	T	7440-23-5	4600	1000	480	ug/L			
Sodium, Dissolved	D	7440-23-5	4600	1000	480	ug/L			

Sample Name GSTO_TEST_746

Matrix Type: Water

Lab Sample Name: 680-124126-2

Sample Date: 4/12/2016 2:15:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	170	200	24	ug/L	J	J	
Calcium	T	7440-70-2	420000	500	25	ug/L			
Iron	T	7439-89-6	300	50	17	ug/L			
Magnesium	T	7439-95-4	14000	500	33	ug/L			
Potassium	T	7440-09-7	1800	1000	17	ug/L		J+	Q
Sodium	T	7440-23-5	4700	1000	480	ug/L			

Sample Name GSTI_C_TEST_638

Matrix Type: Water

Lab Sample Name: 680-124126-3

Sample Date: 4/12/2016 1:30:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	7700	200	24	ug/L			
Aluminum, Dissolved	D	7429-90-5	140	200	24	ug/L	J	J	
Calcium	T	7440-70-2	420000	500	25	ug/L			
Calcium, Dissolved	D	7440-70-2	410000	500	25	ug/L			
Iron	T	7439-89-6	37000	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	200	50	17	ug/L			

Analysis Method 200.7 Rev 4.4

Magnesium	T	7439-95-4	16000	500	33	ug/L		
Magnesium, Dissolved	D	7439-95-4	14000	500	33	ug/L		
Potassium	T	7440-09-7	1800	1000	17	ug/L	J+	Q
Potassium, Dissolved	D	7440-09-7	1800	1000	17	ug/L		
Sodium	T	7440-23-5	2700	1000	480	ug/L		
Sodium, Dissolved	D	7440-23-5	4600	1000	480	ug/L		

Sample Name GSTI **Matrix Type:** Water
Lab Sample Name: 680-124126-4 **Sample Date:** 4/12/2016 1:00:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	13000	200	24	ug/L			
Aluminum, Dissolved	D	7429-90-5	4700	200	24	ug/L			
Calcium	T	7440-70-2	360000	500	25	ug/L			
Calcium, Dissolved	D	7440-70-2	360000	500	25	ug/L			
Iron	T	7439-89-6	52000	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	36000	50	17	ug/L			
Magnesium	T	7439-95-4	16000	500	33	ug/L			
Magnesium, Dissolved	D	7439-95-4	16000	500	33	ug/L			
Potassium	T	7440-09-7	1800	1000	17	ug/L		J+	Q
Potassium, Dissolved	D	7440-09-7	1800	1000	17	ug/L			
Sodium	T	7440-23-5	2600	1000	480	ug/L			
Sodium, Dissolved	D	7440-23-5	2500	1000	480	ug/L			

Sample Name GSTI_C_TEST_961 **Matrix Type:** Water
Lab Sample Name: 680-124126-5 **Sample Date:** 4/12/2016 2:35:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	6000	200	24	ug/L			
Aluminum, Dissolved	D	7429-90-5	200	200	24	ug/L			
Calcium	T	7440-70-2	420000	500	25	ug/L			
Calcium, Dissolved	D	7440-70-2	410000	500	25	ug/L			
Iron	T	7439-89-6	35000	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	850	50	17	ug/L			
Magnesium	T	7439-95-4	16000	500	33	ug/L			
Magnesium, Dissolved	D	7439-95-4	14000	500	33	ug/L			
Potassium	T	7440-09-7	1900	1000	17	ug/L		J+	Q
Potassium, Dissolved	D	7440-09-7	1800	1000	17	ug/L			
Sodium	T	7440-23-5	2700	1000	480	ug/L			
Sodium, Dissolved	D	7440-23-5	4500	1000	480	ug/L			

Analysis Method 200.7 Rev 4.4

Sample Name		GSTO_TEST_638				Matrix Type: Water			
Lab Sample Name:		680-124126-6		Sample Date:		4/12/2016 1:45:00 PM			
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	190	200	24	ug/L	J	J	
Aluminum, Dissolved	D	7429-90-5	100	200	24	ug/L	J	J	
Calcium	T	7440-70-2	420000	500	25	ug/L			
Calcium, Dissolved	D	7440-70-2	420000	500	25	ug/L			
Iron	T	7439-89-6	410	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	17	50	17	ug/L	U	U	
Magnesium	T	7439-95-4	14000	500	33	ug/L			
Magnesium, Dissolved	D	7439-95-4	14000	500	33	ug/L			
Potassium	T	7440-09-7	1800	1000	17	ug/L		J+	Q
Potassium, Dissolved	D	7440-09-7	1800	1000	17	ug/L			
Sodium	T	7440-23-5	4600	1000	480	ug/L			
Sodium, Dissolved	D	7440-23-5	4700	1000	480	ug/L			

Sample Name		GSTI_C_TEST_746					Matrix Type: Water		
Lab Sample Name:		680-124126-7		Sample Date:		4/12/2016 2:10:00 PM			
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	6400	200	24	ug/L			
Calcium	T	7440-70-2	420000	500	25	ug/L			
Iron	T	7439-89-6	36000	50	17	ug/L			
Magnesium	T	7439-95-4	16000	500	33	ug/L			
Potassium	T	7440-09-7	1800	1000	17	ug/L	F1	J+	Q
Sodium	T	7440-23-5	2800	1000	480	ug/L			

Analysis Method 200.8

Sample Name		GSTO_TEST_961					Matrix Type: Water		
Lab Sample Name:		680-124126-1		Sample Date:		4/12/2016 2:30:00 PM			
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.4	1	0.4	ug/L	U	U	
Antimony, Dissolved	D	7440-36-0	0.4	1	0.4	ug/L	U	U	
Arsenic	T	7440-38-2	0.37	1	0.37	ug/L	U	U	
Arsenic, Dissolved	D	7440-38-2	0.37	1	0.37	ug/L	U	U	
Barium	T	7440-39-3	8.5	2	0.14	ug/L			
Barium, Dissolved	D	7440-39-3	8.7	2	0.14	ug/L			
Beryllium	T	7440-41-7	0.15	0.4	0.15	ug/L	U	U	
Beryllium, Dissolved	D	7440-41-7	0.15	0.4	0.15	ug/L	U	U	

Analysis Method 200.8

Cadmium	T	7440-43-9	4.4	0.5	0.043	ug/L		
Cadmium, Dissolved	D	7440-43-9	4.1	0.5	0.043	ug/L		
Chromium	T	7440-47-3	1	2	1	ug/L	U	U
Chromium, Dissolved	D	7440-47-3	1	2	1	ug/L	U	U
Cobalt	T	7440-48-4	11	0.4	0.12	ug/L		
Cobalt, Dissolved	D	7440-48-4	11	0.4	0.12	ug/L		
Copper	T	7440-50-8	22	1	0.5	ug/L		
Copper, Dissolved	D	7440-50-8	2.2	1	0.5	ug/L		
Lead	T	7439-92-1	0.06	0.3	0.06	ug/L	U	U
Lead, Dissolved	D	7439-92-1	0.2	0.3	0.06	ug/L	J	J
Manganese	T	7439-96-5	13000	2.5	1.2	ug/L	E	
Manganese, Dissolved	D	7439-96-5	13000	2.5	1.2	ug/L	E	
Molybdenum	T	7439-98-7	1.2	1	0.45	ug/L		
Molybdenum, Dissolved	D	7439-98-7	1	1	0.45	ug/L		
Nickel	T	7440-02-0	14	1	0.4	ug/L		
Nickel, Dissolved	D	7440-02-0	14	1	0.4	ug/L		
Selenium	T	7782-49-2	0.58	2	0.58	ug/L	U	U
Selenium, Dissolved	D	7782-49-2	0.58	2	0.58	ug/L	U	U
Silver	T	7440-22-4	0.1	1	0.1	ug/L	U	U
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U
Thallium	T	7440-28-0	0.13	0.2	0.1	ug/L	J	J
Thallium, Dissolved	D	7440-28-0	0.12	0.2	0.1	ug/L	J	J
Vanadium	T	7440-62-2	0.3	1	0.3	ug/L	U	U
Vanadium, Dissolved	D	7440-62-2	0.3	1	0.3	ug/L	U	U
Zinc	T	7440-66-6	230	20	2.8	ug/L		
Zinc, Dissolved	D	7440-66-6	130	20	2.8	ug/L		

Sample Name GSTO_TEST_746

Matrix Type: Water

Lab Sample Name: 680-124126-2

Sample Date: 4/12/2016 2:15:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.4	1	0.4	ug/L	U	U	
Arsenic	T	7440-38-2	0.37	1	0.37	ug/L	U	U	
Barium	T	7440-39-3	8.4	2	0.14	ug/L			
Beryllium	T	7440-41-7	0.15	0.4	0.15	ug/L	U	U	
Cadmium	T	7440-43-9	4.6	0.5	0.043	ug/L			
Chromium	T	7440-47-3	1	2	1	ug/L	U	U	
Cobalt	T	7440-48-4	11	0.4	0.12	ug/L			
Copper	T	7440-50-8	20	1	0.5	ug/L			
Lead	T	7439-92-1	0.06	0.3	0.06	ug/L	U	U	
Manganese	T	7439-96-5	14000	2.5	1.2	ug/L	E		

Analysis Method 200.8

Molybdenum	T	7439-98-7	1.2	1	0.45	ug/L		
Nickel	T	7440-02-0	14	1	0.4	ug/L		
Selenium	T	7782-49-2	0.58	2	0.58	ug/L	U	U
Silver	T	7440-22-4	0.1	1	0.1	ug/L	U	U
Thallium	T	7440-28-0	0.13	0.2	0.1	ug/L	J	J
Vanadium	T	7440-62-2	0.3	1	0.3	ug/L	U	U
Zinc	T	7440-66-6	240	20	2.8	ug/L		

Sample Name GSTI_C_TEST_638

Matrix Type: Water

Lab Sample Name: 680-124126-3

Sample Date: 4/12/2016 1:30:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.75	1	0.4	ug/L	J	J	
Antimony, Dissolved	D	7440-36-0	0.4	1	0.4	ug/L	U	U	
Arsenic	T	7440-38-2	6.9	1	0.37	ug/L			
Arsenic, Dissolved	D	7440-38-2	0.37	1	0.37	ug/L	U	U	
Barium	T	7440-39-3	10	2	0.14	ug/L			
Barium, Dissolved	D	7440-39-3	8.4	2	0.14	ug/L			
Beryllium	T	7440-41-7	3	0.4	0.15	ug/L			
Beryllium, Dissolved	D	7440-41-7	0.15	0.4	0.15	ug/L	U	U	
Cadmium	T	7440-43-9	34	0.5	0.043	ug/L			
Cadmium, Dissolved	D	7440-43-9	4.1	0.5	0.043	ug/L			
Chromium	T	7440-47-3	1.2	2	1	ug/L	J	J	
Chromium, Dissolved	D	7440-47-3	1	2	1	ug/L	U	U	
Cobalt	T	7440-48-4	50	0.4	0.12	ug/L			
Cobalt, Dissolved	D	7440-48-4	9.8	0.4	0.12	ug/L			
Copper	T	7440-50-8	2200	1	0.5	ug/L			
Copper, Dissolved	D	7440-50-8	13	1	0.5	ug/L			
Lead	T	7439-92-1	8.4	0.3	0.06	ug/L			
Lead, Dissolved	D	7439-92-1	0.18	0.3	0.06	ug/L	J	J	
Manganese	T	7439-96-5	19000	2.5	1.2	ug/L	E		
Manganese, Dissolved	D	7439-96-5	13000	2.5	1.2	ug/L	E		
Molybdenum	T	7439-98-7	1.9	1	0.45	ug/L			
Molybdenum, Dissolved	D	7439-98-7	1.2	1	0.45	ug/L			
Nickel	T	7440-02-0	35	1	0.4	ug/L			
Nickel, Dissolved	D	7440-02-0	15	1	0.4	ug/L			
Selenium	T	7782-49-2	0.58	2	0.58	ug/L	U	U	
Selenium, Dissolved	D	7782-49-2	0.58	2	0.58	ug/L	U	U	
Silver	T	7440-22-4	0.1	1	0.1	ug/L	U	U	
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	0.14	0.2	0.1	ug/L	J	J	

Analysis Method 200.8

Thallium, Dissolved	D	7440-28-0	0.12	0.2	0.1	ug/L	J	J
Vanadium	T	7440-62-2	7.2	1	0.3	ug/L		
Vanadium, Dissolved	D	7440-62-2	0.3	1	0.3	ug/L	U	U
Zinc	T	7440-66-6	10000	20	2.8	ug/L	E	
Zinc, Dissolved	D	7440-66-6	160	20	2.8	ug/L		

Sample Name GSTI

Matrix Type: Water

Lab Sample Name: 680-124126-4

Sample Date: 4/12/2016 1:00:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	1.4	1	0.4	ug/L			
Antimony, Dissolved	D	7440-36-0	0.42	1	0.4	ug/L	J	J	
Arsenic	T	7440-38-2	17	1	0.37	ug/L			
Arsenic, Dissolved	D	7440-38-2	1.5	1	0.37	ug/L			
Barium	T	7440-39-3	9.6	2	0.14	ug/L			
Barium, Dissolved	D	7440-39-3	9.3	2	0.14	ug/L			
Beryllium	T	7440-41-7	5	0.4	0.15	ug/L			
Beryllium, Dissolved	D	7440-41-7	2.5	0.4	0.15	ug/L			
Cadmium	T	7440-43-9	36	0.5	0.043	ug/L			
Cadmium, Dissolved	D	7440-43-9	37	0.5	0.043	ug/L			
Chromium	T	7440-47-3	1.8	2	1	ug/L	J	J	
Chromium, Dissolved	D	7440-47-3	1	2	1	ug/L	U	U	
Cobalt	T	7440-48-4	54	0.4	0.12	ug/L			
Cobalt, Dissolved	D	7440-48-4	53	0.4	0.12	ug/L			
Copper	T	7440-50-8	2900	1	0.5	ug/L			
Copper, Dissolved	D	7440-50-8	2100	1	0.5	ug/L			
Lead	T	7439-92-1	19	0.3	0.06	ug/L			
Lead, Dissolved	D	7439-92-1	0.89	0.3	0.06	ug/L			
Manganese	T	7439-96-5	20000	2.5	1.2	ug/L	E		
Manganese, Dissolved	D	7439-96-5	20000	2.5	1.2	ug/L	E		
Molybdenum	T	7439-98-7	3	1	0.45	ug/L			
Molybdenum, Dissolved	D	7439-98-7	0.72	1	0.45	ug/L	J	J	
Nickel	T	7440-02-0	36	1	0.4	ug/L			
Nickel, Dissolved	D	7440-02-0	36	1	0.4	ug/L			
Selenium	T	7782-49-2	0.61	2	0.58	ug/L	J	J	
Selenium, Dissolved	D	7782-49-2	0.58	2	0.58	ug/L	U	U	
Silver	T	7440-22-4	0.1	1	0.1	ug/L	U	U	
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	0.15	0.2	0.1	ug/L	J	J	
Thallium, Dissolved	D	7440-28-0	0.14	0.2	0.1	ug/L	J	J	
Vanadium	T	7440-62-2	13	1	0.3	ug/L			

Analysis Method 200.8

Vanadium, Dissolved D		7440-62-2	0.3	1	0.3	ug/L	U	U
Zinc	T	7440-66-6	11000	20	2.8	ug/L	E	
Zinc, Dissolved	D	7440-66-6	11000	20	2.8	ug/L	E	

Sample Name GSTI_C_TEST_961

Matrix Type: Water

Lab Sample Name: 680-124126-5

Sample Date: 4/12/2016 2:35:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.51	1	0.4	ug/L	J	J	
Antimony, Dissolved	D	7440-36-0	0.4	1	0.4	ug/L	U	U	
Arsenic	T	7440-38-2	3.5	1	0.37	ug/L			
Arsenic, Dissolved	D	7440-38-2	0.37	1	0.37	ug/L	U	U	
Barium	T	7440-39-3	9.8	2	0.14	ug/L			
Barium, Dissolved	D	7440-39-3	8.9	2	0.14	ug/L			
Beryllium	T	7440-41-7	2.7	0.4	0.15	ug/L			
Beryllium, Dissolved	D	7440-41-7	0.15	0.4	0.15	ug/L	U	U	
Cadmium	T	7440-43-9	34	0.5	0.043	ug/L			
Cadmium, Dissolved	D	7440-43-9	7.2	0.5	0.043	ug/L			
Chromium	T	7440-47-3	1	2	1	ug/L	U	U	
Chromium, Dissolved	D	7440-47-3	1	2	1	ug/L	U	U	
Cobalt	T	7440-48-4	50	0.4	0.12	ug/L			
Cobalt, Dissolved	D	7440-48-4	16	0.4	0.12	ug/L			
Copper	T	7440-50-8	2100	1	0.5	ug/L			
Copper, Dissolved	D	7440-50-8	55	1	0.5	ug/L			
Lead	T	7439-92-1	4.9	0.3	0.06	ug/L			
Lead, Dissolved	D	7439-92-1	0.21	0.3	0.06	ug/L	J	J	
Manganese	T	7439-96-5	19000	2.5	1.2	ug/L	E		
Manganese, Dissolved	D	7439-96-5	14000	2.5	1.2	ug/L	E		
Molybdenum	T	7439-98-7	1.3	1	0.45	ug/L			
Molybdenum, Dissolved	D	7439-98-7	0.94	1	0.45	ug/L	J	J	
Nickel	T	7440-02-0	35	1	0.4	ug/L			
Nickel, Dissolved	D	7440-02-0	18	1	0.4	ug/L			
Selenium	T	7782-49-2	0.58	2	0.58	ug/L	U	U	
Selenium, Dissolved	D	7782-49-2	0.58	2	0.58	ug/L	U	U	
Silver	T	7440-22-4	0.1	1	0.1	ug/L	U	U	
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	0.14	0.2	0.1	ug/L	J	J	
Thallium, Dissolved	D	7440-28-0	0.12	0.2	0.1	ug/L	J	J	
Vanadium	T	7440-62-2	4.5	1	0.3	ug/L			
Vanadium, Dissolved	D	7440-62-2	0.3	1	0.3	ug/L	U	U	
Zinc	T	7440-66-6	10000	20	2.8	ug/L	E		

Analysis Method 200.8

Zinc, Dissolved	D	7440-66-6	580	20	2.8	ug/L			
-----------------	---	-----------	-----	----	-----	------	--	--	--

Sample Name GSTO_TEST_638

Matrix Type: Water

Lab Sample Name: 680-124126-6

Sample Date: 4/12/2016 1:45:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.4	1	0.4	ug/L	U	U	
Antimony, Dissolved	D	7440-36-0	0.4	1	0.4	ug/L	U	U	
Arsenic	T	7440-38-2	0.37	1	0.37	ug/L	U	U	
Arsenic, Dissolved	D	7440-38-2	0.37	1	0.37	ug/L	U	U	
Barium	T	7440-39-3	8.4	2	0.14	ug/L			
Barium, Dissolved	D	7440-39-3	8.2	2	0.14	ug/L			
Beryllium	T	7440-41-7	0.15	0.4	0.15	ug/L	U	U	
Beryllium, Dissolved	D	7440-41-7	0.15	0.4	0.15	ug/L	U	U	
Cadmium	T	7440-43-9	5.8	0.5	0.043	ug/L			
Cadmium, Dissolved	D	7440-43-9	5.4	0.5	0.043	ug/L			
Chromium	T	7440-47-3	1	2	1	ug/L	U	U	
Chromium, Dissolved	D	7440-47-3	1	2	1	ug/L	U	U	
Cobalt	T	7440-48-4	14	0.4	0.12	ug/L			
Cobalt, Dissolved	D	7440-48-4	13	0.4	0.12	ug/L			
Copper	T	7440-50-8	25	1	0.5	ug/L			
Copper, Dissolved	D	7440-50-8	1.5	1	0.5	ug/L			
Lead	T	7439-92-1	0.17	0.3	0.06	ug/L	J	J	
Lead, Dissolved	D	7439-92-1	0.073	0.3	0.06	ug/L	J	J	
Manganese	T	7439-96-5	14000	2.5	1.2	ug/L	E		
Manganese, Dissolved	D	7439-96-5	14000	2.5	1.2	ug/L	E		
Molybdenum	T	7439-98-7	1.4	1	0.45	ug/L			
Molybdenum, Dissolved	D	7439-98-7	1.3	1	0.45	ug/L			
Nickel	T	7440-02-0	16	1	0.4	ug/L			
Nickel, Dissolved	D	7440-02-0	16	1	0.4	ug/L			
Selenium	T	7782-49-2	0.58	2	0.58	ug/L	U	U	
Selenium, Dissolved	D	7782-49-2	0.58	2	0.58	ug/L	U	U	
Silver	T	7440-22-4	0.1	1	0.1	ug/L	U	U	
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	0.12	0.2	0.1	ug/L	J	J	
Thallium, Dissolved	D	7440-28-0	0.12	0.2	0.1	ug/L	J	J	
Vanadium	T	7440-62-2	0.3	1	0.3	ug/L	U	U	
Vanadium, Dissolved	D	7440-62-2	0.3	1	0.3	ug/L	U	U	
Zinc	T	7440-66-6	370	20	2.8	ug/L			
Zinc, Dissolved	D	7440-66-6	260	20	2.8	ug/L			

Analysis Method 200.8

Sample Name		GSTI_C_TEST_746					Matrix Type: Water		
Lab Sample Name:		680-124126-7		Sample Date: 4/12/2016 2:10:00 PM					
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.58	1	0.4	ug/L	J	J	
Arsenic	T	7440-38-2	4.4	1	0.37	ug/L			
Barium	T	7440-39-3	9.5	2	0.14	ug/L			
Beryllium	T	7440-41-7	2.8	0.4	0.15	ug/L			
Cadmium	T	7440-43-9	34	0.5	0.043	ug/L			
Chromium	T	7440-47-3	1	2	1	ug/L	U	U	
Cobalt	T	7440-48-4	50	0.4	0.12	ug/L			
Copper	T	7440-50-8	2100	1	0.5	ug/L			
Lead	T	7439-92-1	5.6	0.3	0.06	ug/L			
Manganese	T	7439-96-5	19000	2.5	1.2	ug/L	E		
Molybdenum	T	7439-98-7	1.5	1	0.45	ug/L			
Nickel	T	7440-02-0	35	1	0.4	ug/L			
Selenium	T	7782-49-2	0.58	2	0.58	ug/L	U	U	
Silver	T	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	0.14	0.2	0.1	ug/L	J	J	
Vanadium	T	7440-62-2	4.9	1	0.3	ug/L			
Zinc	T	7440-66-6	9900	20	2.8	ug/L	E		

Analysis Method 245.1

Sample Name		GSTO_TEST_961					Matrix Type: Water		
Lab Sample Name:		680-124126-1		Sample Date: 4/12/2016 2:30:00 PM					
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

Sample Name		GSTO_TEST_746					Matrix Type: Water		
Lab Sample Name:		680-124126-2		Sample Date: 4/12/2016 2:15:00 PM					
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

Sample Name		GSTI_C_TEST_638					Matrix Type: Water		
Lab Sample Name:		680-124126-3		Sample Date: 4/12/2016 1:30:00 PM					
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

Analysis Method 245.1

Sample Name GSTI **Matrix Type:** Water
Lab Sample Name: 680-124126-4 **Sample Date:** 4/12/2016 1:00:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

Sample Name GSTI_C_TEST_961 **Matrix Type:** Water
Lab Sample Name: 680-124126-5 **Sample Date:** 4/12/2016 2:35:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

Sample Name GSTO_TEST_638 **Matrix Type:** Water
Lab Sample Name: 680-124126-6 **Sample Date:** 4/12/2016 1:45:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

Sample Name GSTI_C_TEST_746 **Matrix Type:** Water
Lab Sample Name: 680-124126-7 **Sample Date:** 4/12/2016 2:10:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

Analysis Method 6010C

Sample Name GST_SLUDGE_041216 **Matrix Type:** Solid
Lab Sample Name: 680-124126-8 **Sample Date:** 4/12/2016 2:00:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	4.3	2	2	mg/L			
Calcium	T	7440-70-2	92	5	5	mg/L			
Iron	T	7439-89-6	1	1	1	mg/L	U	U	
Magnesium	T	7439-95-4	19	5	5	mg/L			
Potassium	T	7440-09-7	10	10	10	mg/L	U	U	

Analysis Method 6020A

Sample Name		GST_SLUDGE_041216					Matrix Type: Solid		
Lab Sample Name:		680-124126-8		Sample Date: 4/12/2016 2:00:00 PM					
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.05	0.05	0.05	mg/L	U	U	
Arsenic	T	7440-38-2	0.03	0.03	0.03	mg/L	U	U	
Barium	T	7440-39-3	0.05	0.05	0.05	mg/L	U	U	
Beryllium	T	7440-41-7	0.007	0.005	0.005	mg/L			
Cadmium	T	7440-43-9	0.31	0.005	0.005	mg/L			
Chromium	T	7440-47-3	0.05	0.05	0.05	mg/L	U	U	
Cobalt	T	7440-48-4	0.37	0.005	0.005	mg/L			
Copper	T	7440-50-8	11	0.05	0.05	mg/L			
Lead	T	7439-92-1	0.025	0.025	0.025	mg/L	U	U	
Manganese	T	7439-96-5	80	0.05	0.05	mg/L			
Molybdenum	T	7439-98-7	0.05	0.05	0.05	mg/L	U	U	
Nickel	T	7440-02-0	0.17	0.05	0.05	mg/L			
Selenium	T	7782-49-2	0.025	0.025	0.025	mg/L	U	U	
Silver	T	7440-22-4	0.01	0.01	0.01	mg/L	U F1	UJ	Q
Thallium	T	7440-28-0	0.01	0.01	0.01	mg/L	U	U	
Vanadium	T	7440-62-2	0.1	0.1	0.1	mg/L	U	U	
Zinc	T	7440-66-6	99	20	20	mg/L			

Analysis Method 7470A

Sample Name		GST_SLUDGE_041216					Matrix Type: Solid		
Lab Sample Name:		680-124126-8		Sample Date: 4/12/2016 2:00:00 PM					
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.02	0.02	0.02	mg/L	U	U	